

Science AMA Series: I’m David Johns, from Columbia University’s Mailman School of Public Health. I study the history of scientific debates over the health risks associated with excessive consumption of sugar, salt, and fat. AMA!

David-Johns<sup>1</sup> and r/Science AMAs<sup>1</sup>

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### Abstract

On February 16, my colleague Gerald Oppenheimer and I published an article in Science that challenged high-profile claims in the academic literature and popular press alleging that the sugar industry paid scientists in the 1960s to play down the link between sugar and heart disease and “shift the blame” to dietary fat instead. Our article focuses on documents unearthed in historical archives about sugar industry funding of Harvard nutrition scientists in the 1960s, which some experts have identified as “smoking gun” evidence that the sugar industry successfully meddled in science and “derailed” the course of dietary policy. We disagree with these widely publicized claims. As we write in our article, there was no “smoking gun.” Previously, my colleagues and I have explored the scientific debates around another controversial ingredient: salt. We analyzed a wide body of scientific reports on the health effects of a salty diet, and showed in a 2016 study that the field is sharply polarized between those who believe population-wide reduction of salt intake will lead to improved health and those who think the data are not convincing. I am not a nutrition scientist, and I don’t claim to have the final answers on the risks of consuming too much sugar or salt! But still: AMA! EDIT: I’M HERE! Thanks for the questions. I am going to start answering right now!!! EDIT 2: I have really enjoyed answering all of your excellent questions. Cheers! Sugar research: <https://www.mailman.columbia.edu/public-health-now/news/researchers-challenge-claims-sugar-industry-shifted-blame-fat> <http://science.sciencemag.org/content/359/6377/747.full> Salt research: <https://www.mailman.columbia.edu/public-health-now/news/science-salt-polarized-study-finds> <https://academic.oup.com/ije/article/45/1/251/2363485> [https://www.reddit.com/r/askscience/ama\\_series\\_im\\_david\\_johns\\_a\\_doctoral/](https://www.reddit.com/r/askscience/ama_series_im_david_johns_a_doctoral/)

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# Science AMA Series: I'm David Johns, from Columbia University's Mailman School of Public Health. I study the history of scientific debates over the health risks associated with excessive consumption of sugar, salt, and fat. AMA!

DAVID-JOHNS [R/SCIENCE](#)

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Sugar research:

<https://www.mailman.columbia.edu/public-health-now/news/researchers-challenge-claims-sugar-industry-shifted-blame-fat>

<http://science.sciencemag.org/content/359/6377/747.full>

Salt research:

<https://www.mailman.columbia.edu/public-health-now/news/science-salt-polarized-study-finds>

<https://academic.oup.com/ije/article/45/1/251/2363485>

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#### CORRESPONDENCE:

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Is the history and intensity of scientific debates over the health risks associated with sugar/salt/fat/etc. an Anglo-American phenomenon, or is it broadly shared internationally? I get the impression that a lot of the shifting advice is related to an American love of novelty and doing things differently (better, we think) than our parents. It is a trait advertisers expertly exploit - as if each generation has newly discovered food, in a way that would be inexplicable to, say, the French, Italians, Japanese, or other less industrialized food cultures.

[stability analysis](#)

I do think you are on to something in your observations. In the scientific literature from the 1950s and 1960s you sometimes see European researchers refer, somewhat disparagingly, to the "American" theory that dietary fat and cholesterol were the drivers of heart disease. Even more to the point, the psychologist Paul Rozin and sociologist Claude Fischler have conducted surveys of attitudes about food in France versus the US that have shown differences in food fears. Quoting here from the

history of scientific debates over the health risks associated with excessive consumption of sugar, salt, and fat. AMA!, *The Winnower* 5:e152059.99831, 2018, DOI: [10.15200/winn.152059.99831](https://doi.org/10.15200/winn.152059.99831)

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historian Harvey Levenstein's 2012 book *Fear of Food*: "For instance, when asked what came to mind at the mention of whipped cream and chocolate, the French tended to respond with thoughts of pleasure, while Americans replied with words such as 'guilt' or 'unhealthy.' This prompted Rozin to observe, 'There is a sense among many Americans that food is as much a poison as it is a nutrient, and that eating is almost as dangerous as not eating.'"

I think you also have to look at the place of the United States in the world in the 1950s, for example. Fresh off the successes of radar and the atomic bomb in WWII, leading US scientists like Ancel Keys assumed top posts in new international organizations like the FAO and WHO. American science was expected to lead the way to a better tomorrow, and heart disease was perceived as a major new threat. It seemed clear that the diet was somehow involved in this new public health challenge, and that a more scientific approach to eating could lead to better health outcomes. And of course the US, as a "nation of immigrants," had more of a melting pot approach to cuisine than did other nation states that had longer standing dietary traditions. So the US was, it would seem, fertile ground for new health-oriented approaches to eating, and for the anxieties to which these approaches would inevitably give rise.

Sir, How would you normally respond to people who do not acknowledge the scientific facts about excessive consumption of fat, sugar, sodium, etc? We have seen a huge amount of people who do not agree with the "elites" for the sole reason that it alter their way of life. Thank you for your time.

[toimailatoi](#)

Thanks for the question! You are certainly right that there are some people who do not trust the "elite" experts in public health and medicine who try to provide the best available guidance on a healthy diet. The perception that nutrition science has been filled with confusion and a barrage of competing claims -- or at least that the news media is constantly filled with new gee-whiz stories about the possible wonders of blueberries, walnuts, dark chocolate, or what have you -- has contributed to some of this. There is a complex interplay between scientists, their university press offices, and the news media that in the end may be traceable to the very structure of the scientific research enterprise itself -- that is, the fact that scientists are incentivized to produce splashy findings in order to get attention and more grant money, and that the news media also prefers "novel" findings. And then there are secular, cultural trends that may be playing into perceptions of nutrition advice as well. That said, I actually think that most people *do* generally accept what the experts say, and also realize that sometimes well-intentioned experts give advice that later turns out to be wrong. In general I think that people are free to eat as they choose -- or at least that it is very difficult to directly intervene on behavior -- although they are profoundly limited by what the food industry produces. So in general I think the focus of attention in public health nutrition has shifted from emphasizing "personal responsibility" in food choices to things like taxes on sugar-sweetened beverages that intervene at the environmental level.

Is it possible to trigger diabetes by eating too much rice from every meal? Follow up question, if I do not get fat from eating too much, including fatty foods, is the risk of getting a heart disease the same for me compared to those who are already fat?

[A-Manual](#)

I should say up front that I am a historian of public health, not a physician or a nutrition scientist, and the focus of my work has not been on reaching conclusions about "what the science says" in matters of diet. That said, I can tell you some things that people who do focus on judging the evidence say on these topics. First, some comments on rice! I'm not familiar with research that has been conducted specifically on rice intake and diabetes, although I am guessing there may be some. However, I would be remiss here in not bringing up the famous Rice Diet that was launched at Duke University in the 1940s by the physician-scientist Walter Kempner. Kempner found that a low-salt diet consisting of mainly rice and fruit could lower both blood pressure and blood cholesterol levels. The diet was not considered to be particularly appetizing, but the rice diet program was deemed the first effective therapy for patients with serious cardiovascular disease. So the point is that these patients ate huge amounts of rice, and their cardiovascular risk profiles appeared to improve. They also lost weight, and

the Rice Diet program became a huge money-maker as a weight loss program -- drawing many wealthy clients from New York City and elsewhere who had very serious or even "terminal" cardiovascular disease. So, back to your question: I would want to know what else you are eating along with the rice! If you are eating just rice, I would be very surprised if you could eat so much that it would trigger diabetes. I'm sure you are eating other things. In general, almost all of the evidence indicates that losing weight significantly reduces your risk of heart disease, although certainly thin people are not immune. In general I believe that focusing too much on one type of food or macronutrient is ill-advised -- you need to settle upon a diet that is both healthy and sustainable, and I think that different approaches can work well for different people. (This is one reason the rice diet was not the best over the long term -- by most accounts, it was so monotonous that it amounted to significant suffering.) Perhaps you saw the recent large study that found not much difference between low-fat and low-carb approaches <http://med.stanford.edu/news/all-news/2018/02/low-fat-or-low-carb-its-a-draw-study-finds.html>

We know not all studies are created equal. It goes without saying that determining the weight to put on certain studies and what studies are included/excluded are extremely important in any meta-analysis.

What is your methodology?

[logicallyzany](#)

I don't conduct meta-analyses! I'm a historian of public health, and so I focus on the historical evidence. That said, I will give you my thoughts on the idea that "not all studies are created equal" since a good deal of my historical work has examined the "evidence-based" movement in medicine and public health. The use of meta-analyses in medicine and public health was initially highly controversial, but has steadily worked its way into the center of any discussion of what should be counted as good evidence. However, the question of whether a meta-analysis of all of the available randomized controlled trials, say, should be regarded as more "definitive" than the results of a single, large, well controlled trial has not really been answered, I don't believe. Some assert that if you do not include all of the available evidence then you are being selective and hence "unscientific," while others say that if you include too many of the lousy, poorly executed trials in your analysis then you are in a "garbage in, garbage out" kind of situation. There are different standards and systems for judging what evidence to include/exclude, but people fight about this. Witness, for example, the debates over the US Preventive Services Task Force's judgments about the benefits and risks of mammography for women in their 40s. I also think it is important to note that the idea that the RCT is the "gold standard" came about in a specific historical context, and that the common claim that only RCTs can give us evidence about causation makes little sense, in my view. To me, the idea that there should be an explicit hierarchy of evidence to guide decision making has always been more about adjudicating disagreements and reaching consensus than any "scientific" reality that the results of RCTs, no matter how small or poorly conducted, should always be regarded as more reliable than other forms of evidence (epidemiologic studies, case studies, even clinical experience!)

There are so many "lo-fat," etc. products out there that are not actually healthy, capitalizing on that early research; do you see a way to course-correct and make more nutritionally sound choices available/appealing to consumers?

[luminumsiren](#)

I think there is a "course correction," to use your phrase, already underway. I have been seeing various "low-carb" or "paleo" snack products on stores shelves of late, and my view is that they are also probably not the best choice if you are going for a healthy diet. It does seem that we probably need to find a way to make more nutritionally sound and "unprocessed" choices widely available to consumers. Those efforts will probably start far upstream, in the US Congress and other national legislatures, and may involve priority setting in things like the Farm Bill. At the local level, strategies like taxes on sugar-sweetened beverages and other approaches that make unhealthy choices more expensive and healthy choices relatively more affordable will probably help. But the question of convenience and consumer preference is always there, too: we need to find ways to move the food environment in a healthier

direction that does not ask people to spend hours and hours preparing their own food every day. It is clear that people enjoy the convenience of prepared foods sometimes, and we need to recognize and work with that preference. People do not live their lives thinking about how best to sustain their health and longevity in every waking minute! Other considerations, like convenience and pleasure, are also important.

are you now or have you ever been funded by the sugar or beet or corn industry directly or indirectly?

have you been contacted by any of them directly or indirectly?

[azzazaz](#)

I am not now nor have I ever been funded by the sugar or beet or corn industries! Our recent paper in Science, "Was There Ever Really a 'Sugar Conspiracy'?" was based on research for which we had no funding whatsoever, except for the support we receive from our universities. Some of the historical data that we relied upon in our article came out of a fellowship I had in 2014-2015 with Harvard's Countway Library of Medicine, although the focus of that research was not on sugar or the sugar industry.

[https://www.countway.harvard.edu/sites/countway.harvard.edu/files/media/Former\\_Countway\\_Library\\_Fellows\\_2.pdf](https://www.countway.harvard.edu/sites/countway.harvard.edu/files/media/Former_Countway_Library_Fellows_2.pdf)

We did receive an email from a representative of the sugar industry after our Science article was published. They were interested in how we can to be interested in the topic. We replied and explained how we got interested. That is the extent of our interactions with the sugar industry!

Why work in cohesion with Dr. Oppenheimer if his field of expertise is more on disease and epidemics like AIDS, rather than food related issues?

[ImperialHedonism](#)

Gerry has written extensively on the history of cardiovascular disease epidemiology, the Framingham Heart Study, and the debates over the 1977 Dietary Goals. So he knows a great deal about this topic area! He has an appointment with the Center for History & Ethics of Public Health, where I am a PhD candidate here at Columbia, so we see a lot of each other and work closely together. (His academic home is with CUNY's School of Public Health.)